

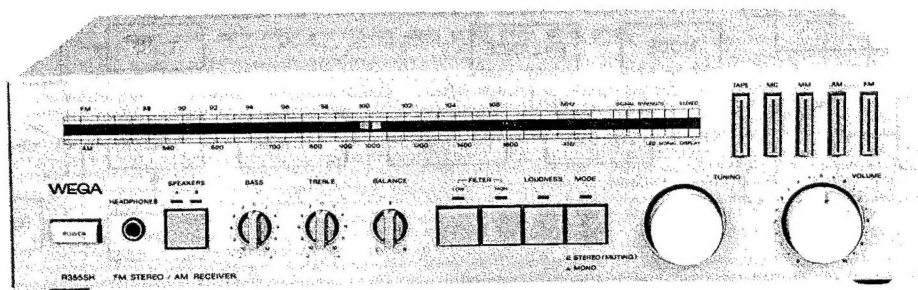
# WEGA

## FM / AM 2BAND RECEIVER

# R355SH

### Service Manual

### 8/81

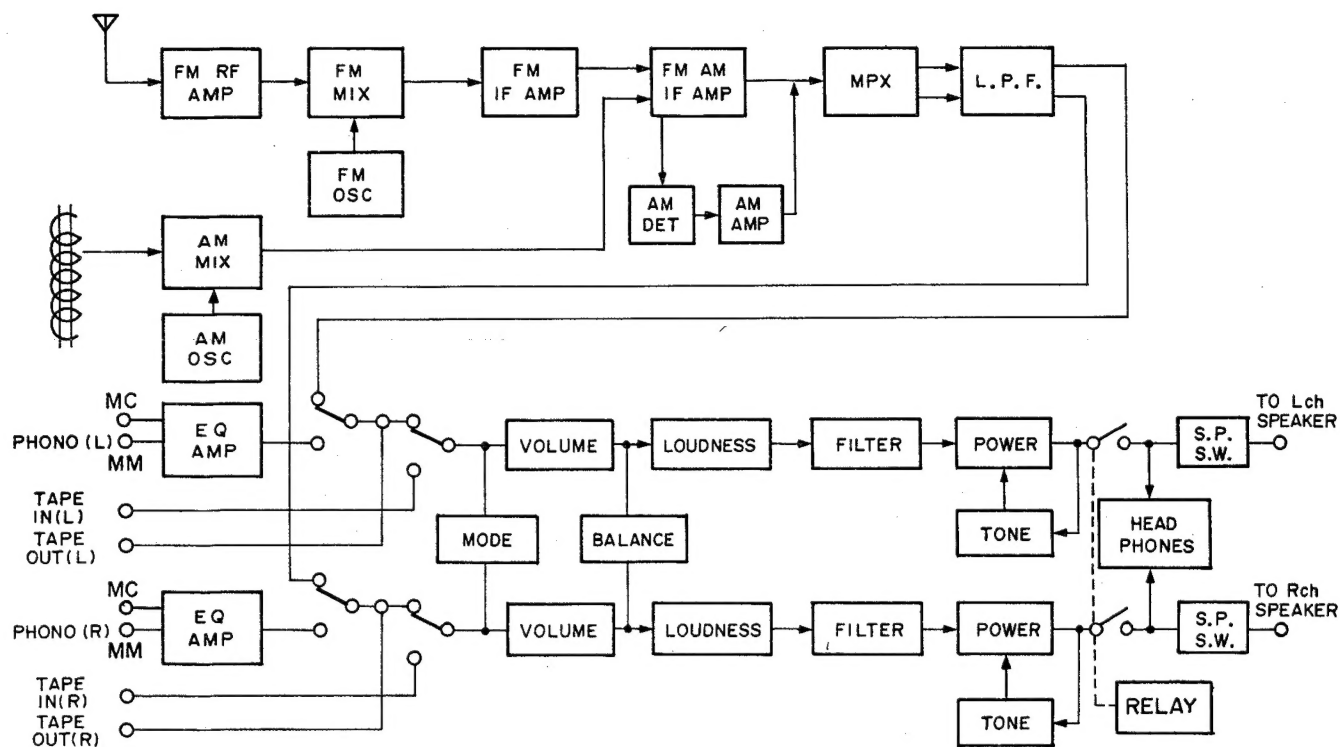


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## SECTION 1 OUTLINE

Block Diagram



## SPECIFICATIONS

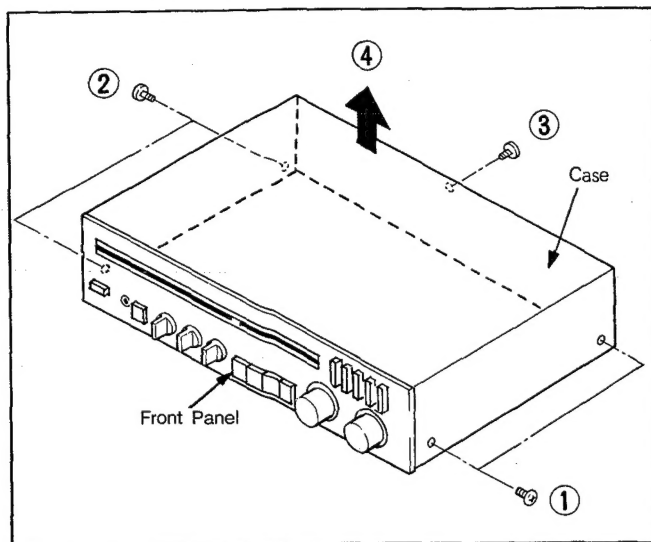
Tuning Range	FM	87.5 – 106 MHz
	AM	520 – 1605 kHz
Usable sensitivity	FM	1.5 $\mu$ V (S/N = 26 dB 40 kHz Mod.)
	AM	250 $\mu$ V/m with ferrite bar antenna
Signal to Noise Ratio	FM	70 dB (Mono)
	AM	50 dB (50 mV/m)
Selectivity	FM	66 dB (300 kHz)
	AM	35 dB (9 kHz)
Distortion	FM	0.3% (Mono), 1% (Stereo)
	AM	0.5%
Stereo Separation	FM	40 dB (1 kHz)
Amplifier		
Continuous power		2 x 50W, 4 $\Omega$ (1 kHz)
Music power		2 x 90W, 4 $\Omega$ (1 kHz)
Distortion		0.2% with 1 kHz (50W)
Input sensitivity	Phono	MC – 0.2mV/100 $\Omega$ , MM – 2.5mV/50 k $\Omega$
	Tape	150mV/50 k $\Omega$
Tone Control	Bass	$\pm$ 8 dB/100 Hz
	Treble	$\pm$ 8 dB/10 kHz
Speaker		4 $\Omega$ – 16 $\Omega$ (Terminals + DIN jack)
Power supply		220V/50 Hz
Power consumption		350 W
Dimensions (W x H x D)		430 x 115 x 320 mm
Weight		7.5 kg

## SECTION 2 DISASSEMBLY

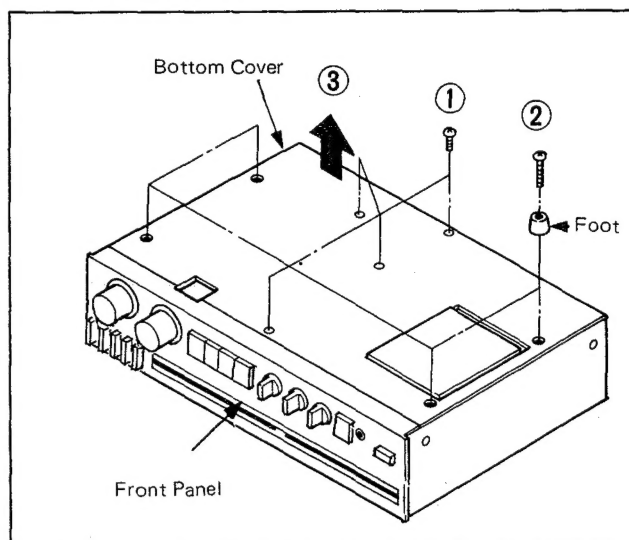
### 2-1: Removal

Follow the disassembly procedure in the numerical order given.

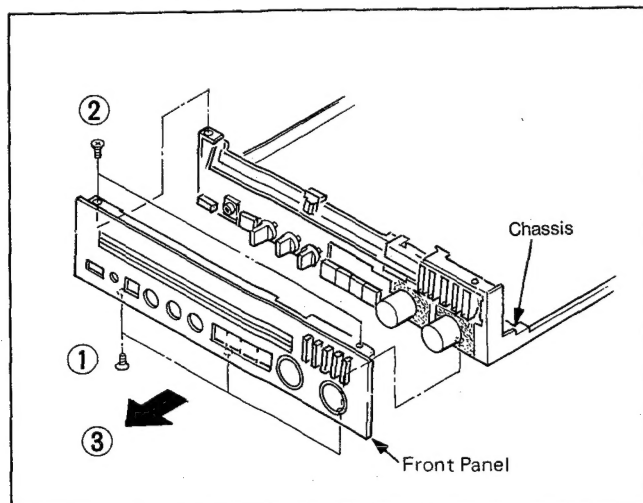
#### a. Case Removal



#### b. Bottom Cover Removal



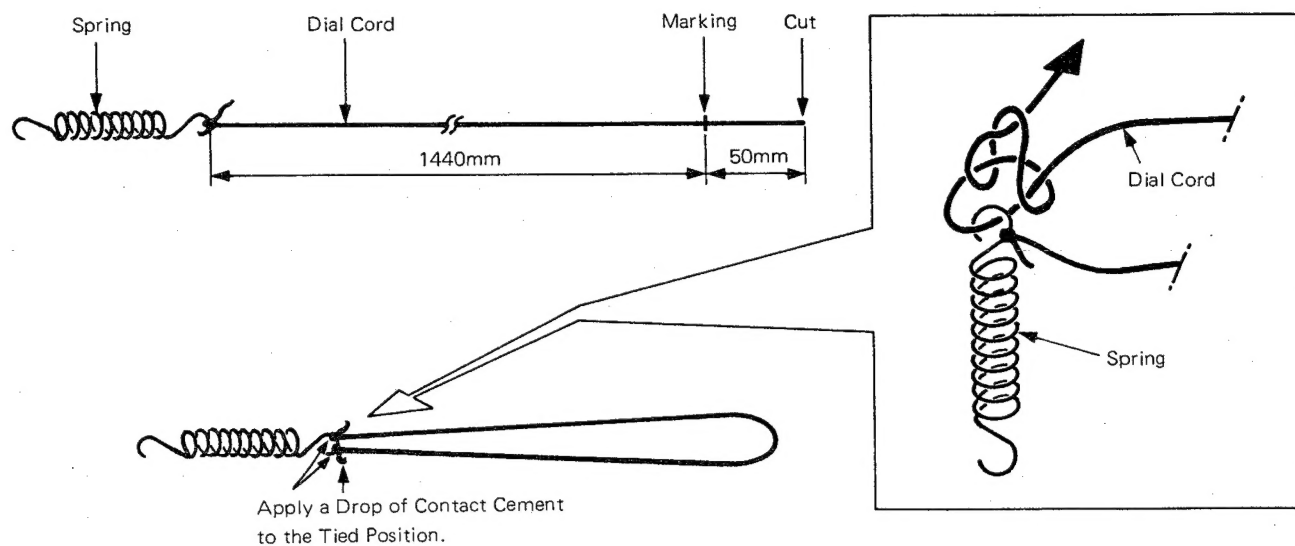
#### c. Front Panel Removal



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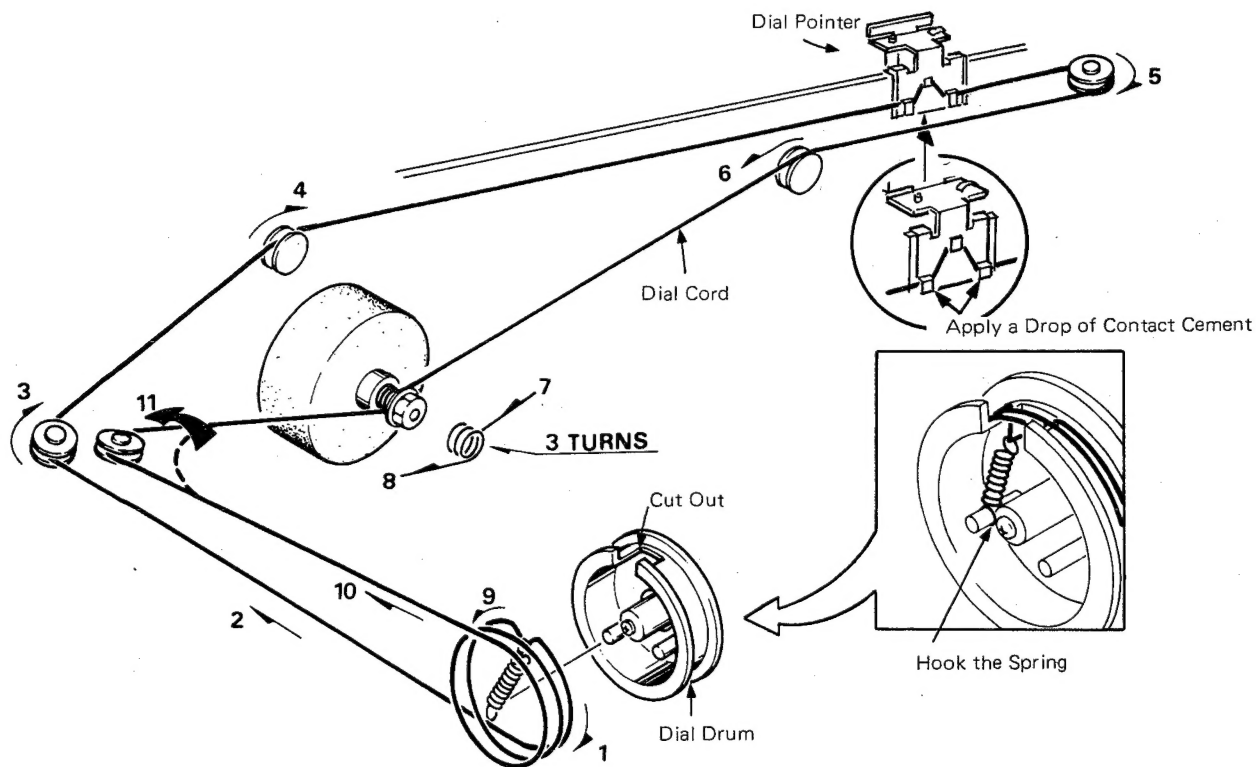
## 2-2: Dial Cord Stringing

### a. Preparation



### b. Stringing

Turn the tuning capacitor shaft fully clockwise position (f-min) and set the dial drum so that the cutout is positioned as shown below.



### c. Dial Pointer Installation

1. Adjust the position of the dial pointer by receiving a known station.
2. Apply a drop of contact cement to dial pointer to fix it on the dial cord.



### SECTION 3 ELECTRICAL ADJUSTMENT

**Equipment Needed:**

- |                               |                           |                            |
|-------------------------------|---------------------------|----------------------------|
| 1. AM Signal Generator        | 4. Oscilloscope           | 7. Distortion Meter        |
| 2. FM Signal Generator        | 5. Output Meter (AC VTVM) | 8. Load Resistor (47K Ohm) |
| 3. FM Stereo Signal Generator | 6. Frequency Counter      | 9. Center Meter            |

**Important Notes:**

- |   |  |
|---|--|
| 1. Use only nonmetallic alignment tools to ensure proper alignment.               | 3. Apply 1000 Hz modulation to signal generator at 30% modulation ( $\pm 22.5$ kHz deviation for FM) except where noted. |
| 2. Keep signal generator output signal as low as possible to prevent overloading. |  |

**3-1 AM Adjustment** (Function Selector Switch set to AM)

Step	AM Generator		Dial Setting	AC VTVM and Oscilloscope	Adjust	Indication
	Connection	Frequency				
1	To Standard Radiating Loop or a short piece of copper wire placed near Antenna	450KHz	Low end of dial	Connect TAPE OUT Jack	CFU201 T103	Maximum Audio Output
2		510KHz	Extreme low end of dial. Tuning gang fully closed.		AM OSC. coil L202	
3		1640KHz	Extreme high end of dial. Tuning gang fully opened.		AM OSC. Trimmer CT105	
4	Modulation 1KHz at 30%	600KHz	Tune to Generator Signal		Antenna coil (L201-1) on back of set. Repeat step 4 & 5 until maximum output is achieved.	
5		1400KHz	Tune to Generator Signal		AM RF trimmer CT104	

**3-3 FM Adjustment** (Function Selector Switch set to FM MONO.)

Step	Signal Generator		Dial Setting	Indicator	Adjust	Indication
	Connection	Frequency				
1	FM Generator connected by two 50 Ohm carbon resistors with lead to antenna terminals	No signal	Medium of dial	AC VTVM & Oscilloscope Connected to TAPE OUT Jack	T101	Maximum noise output
2		87.4MHz	Extreme low end of dial. Tuning gang fully closed.		FM OSC. coil L105	Maximum Audio output
3		107MHz	Extreme high end of dial. Tuning gang fully opened.		OSC trimmer CT103 Repeat steps 2 & 3 until correct FM calibration is achieved.	
4		88MHz	Tune to Generator Signal		FM RF coils L101, L103	
5		106MHz	Tune to Generator Signal		FM RF trimmers CT101, CT102 Repeat steps 4 & 5 until maximum output is achieved.	
6		No Signal	Medium of dial	Connect FM Center Meter to test points TP-5 & TP-6.	T102 (primary, YEL)	Center meter pointer to exact center of scale.
7		98MHz	Tune to Generator Signal (Set to read 2mV)	Connect AC VTVM & Oscilloscope & Distortion meter to TAPE OUT Jack	T102 (secondary, BLK) Repeat steps 6 & 7 until minimum distortion is obtained with the center meter pointer in its exact center of scale.	Minimum audio output distortion

**3-4 FM MPX Adjustment****Notes:**

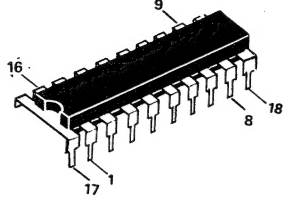

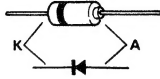
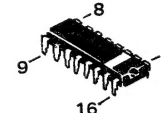

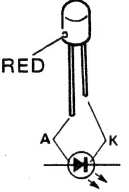
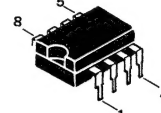

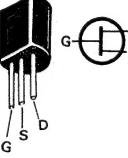

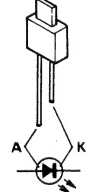


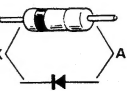

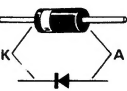
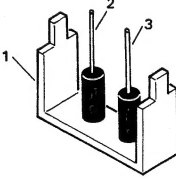
- |  |   |
|--|---|
| 1. Carefully follow the manufacturer's instructions for the FM stereo signal generator being used to obtain standard stereo composite output signal. | 2. If FM stereo generator is equipped with an RF signal output, set frequency deviation meter to $\pm 45$ KHz or use stereo generator composite output and externally modulated FM signal generator for $\pm 45$ KHz frequency deviation. |
|--|---|

Step	FM Stereo Generator RF Signal Output		Dial Setting	Selector Switch	Oscilloscope & AC VTVM	Adjust	Indication
	Connection	Frequency					
1	No Signal		Point of no interference	FM	Connect frequency counter to TP7 & TP8	RV101	76.000 Hz

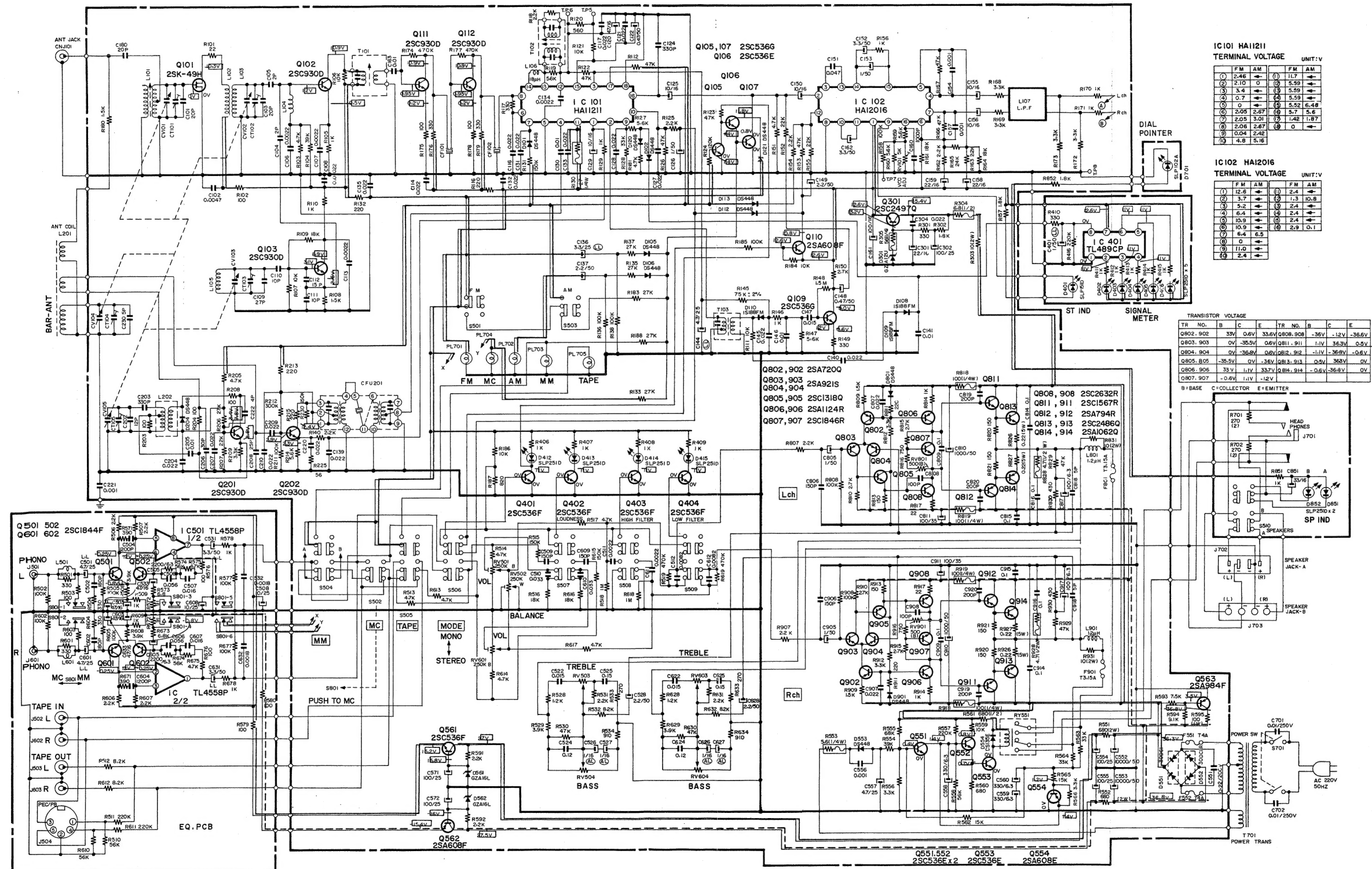
MEMO

SECTION 4  
DIAGRAMS

4-1: Replacement Semiconductors

<p>IC101 : HA11211</p> 	 <p>Q813, 913 : 2SC2486Q</p>	<p>D101, 102, 105, 106, D112, 113, 120, 121, D553, 801, 901, 204 } DS448 D301 : GZA12U D561, 562 : GZA16L</p> 
<p>IC102 : HA12016</p> 	 <p>Q814, 914 : 2SA1062Q</p>	<p>D701 : SLP102A</p> 
<p>IC401 : TL489CP IC501 : TL4558P</p> 	<p>Marking</p>  <p>Q301 : 2SC2497Q Q807, 907 : 2SC1846R Q811, 911 : 2SC1567R</p>	<p>D402 ~ 406 D412 ~ 415 } SCP251D D851, 852</p>
<p>Q101 : 2SK49H</p>  <p>G S D</p>	 <p>Q812, 912 : 2SA794R</p>	<p>D401 : SLP151D</p> 
 <p>Q501, 502, 601, Q602 } 2SC1844F Q105 ~ 107, 109, Q401 ~ 404, 551, } 2SC536E/G/F Q552, 553, 561 Q102, 103, 111, } 2SC930D Q112, 201, 202 Q808, 908 : 2SC2632R</p>	 <p>Q805, 905 : 2SC1318Q</p>	
 <p>Q806, 906 : 2SA1124R Q110, 554 } 2SA608F/E Q562 Q563 : 2SA984F</p>	<p>Q802, 902 : 2SA720Q Q803, 804, 903, 904 : 2SA921S</p>	
	<p>D108 ~ 110 : 1S188FM</p>	
	<p>D554 : DS135E</p>	<p>D551 : 30DCI D552 : 30DCIR</p>

#### 4-2: Schematic Diagram



IC101 HA11211

TERMINAL VOLTAGE UNIT: V

	FM	AM		FM	AM
(1)	2.46	←	(1)	11.7	←
(2)	2.10	0	(2)	5.59	←
(3)	3.4	←	(3)	5.59	←
(4)	0.7	←	(4)	5.59	←
(5)	0	←	(5)	5.52	6.48
(6)	2.05	2.67	(6)	5.7	5.6
(7)	2.05	3.01	(7)	1.42	1.87
(8)	2.06	2.67	(8)	0	←
(9)	0.04	2.42			
(10)	4.8	5.16			

IC102 HA12016

TERMINAL VOLTAGE UNIT:V

	FM	AM		FM	AM
(1)	12.6	←	(11)	2.4	←
(2)	3.7	←	(12)	1.3	10.8
(3)	5.2	←	(13)	2.4	←
(4)	6.4	←	(14)	2.4	←
(5)	10.9	←	(15)	2.4	←
(6)	10.9	←	(16)	2.9	0.1
(7)	6.4	6.5			
(8)	0	←			
(9)	11.0	←			
(10)	2.4	←			

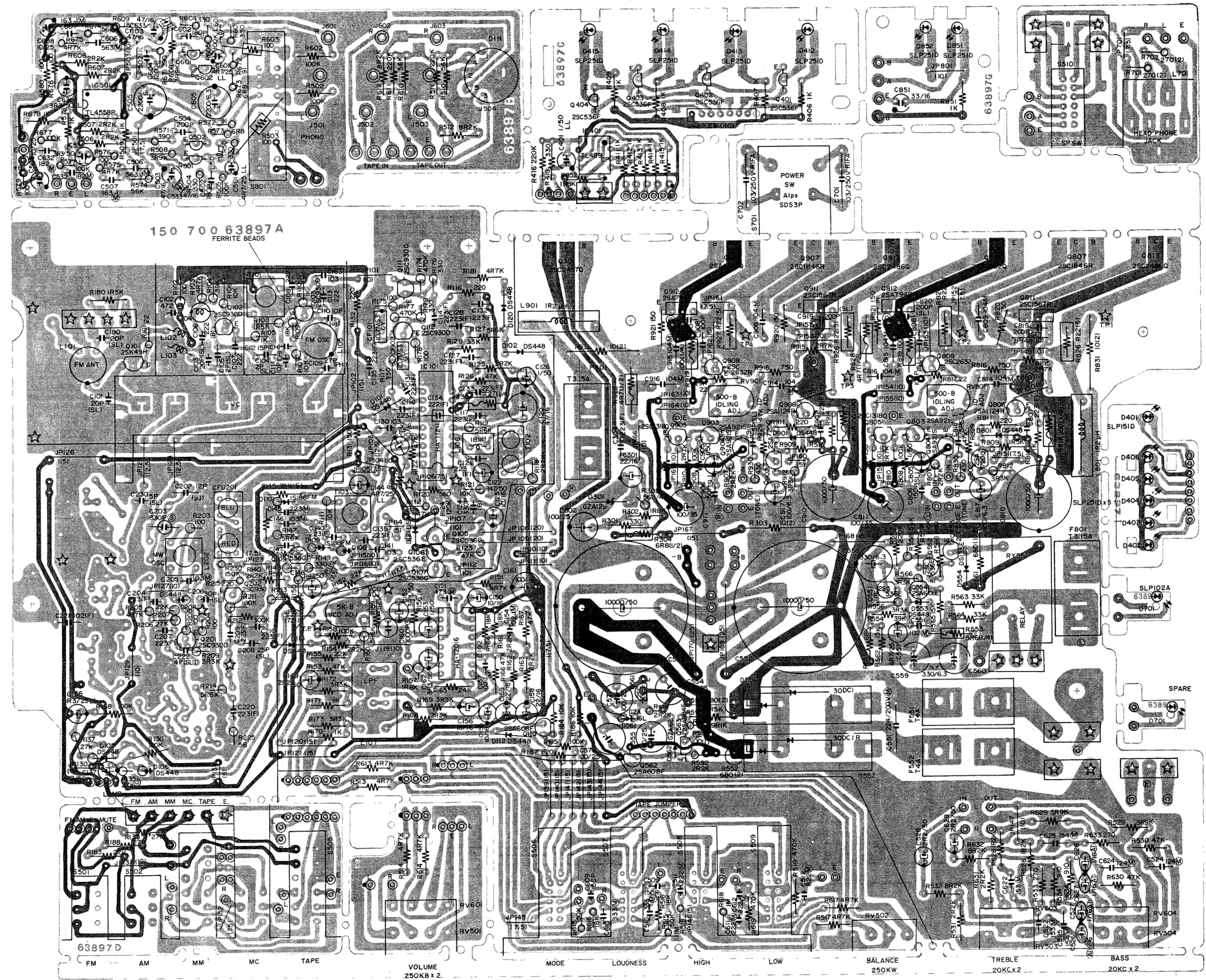
TRANSISTOR VOLTAGE							
TR. NO.	B	C	E	TR. NO.	B	C	E
Q802, 902	33V	0.6V	33.6V	Q808, 908	-35V	-1.2V	-36.6V
Q803, 903	OV	-35.5V	0.6V	Q811, 911	-1.1V	36.3V	0.5V
Q804, 904	OV	-36.8V	0.6V	Q812, 912	-1.1V	-36.9V	-0.6V
Q805, 905	-35.5V	OV	-36V	Q813, 913	0.5V	36.8V	OV
Q806, 906	33V	1.1V	33.7V	Q814, 914	-0.6V	-36.8V	OV
Q807, 907	-0.6V	1.1V	-1.2V				


B = BASE C = COLLECTOR E = EMITTER

IC 501 TL4558P			
TERMINAL VOLTAGE UNIT: V			
①	0	⑤	11.9
②	12	⑥	11.9
③	12	⑦	0
④	-15.4	⑧	15.2

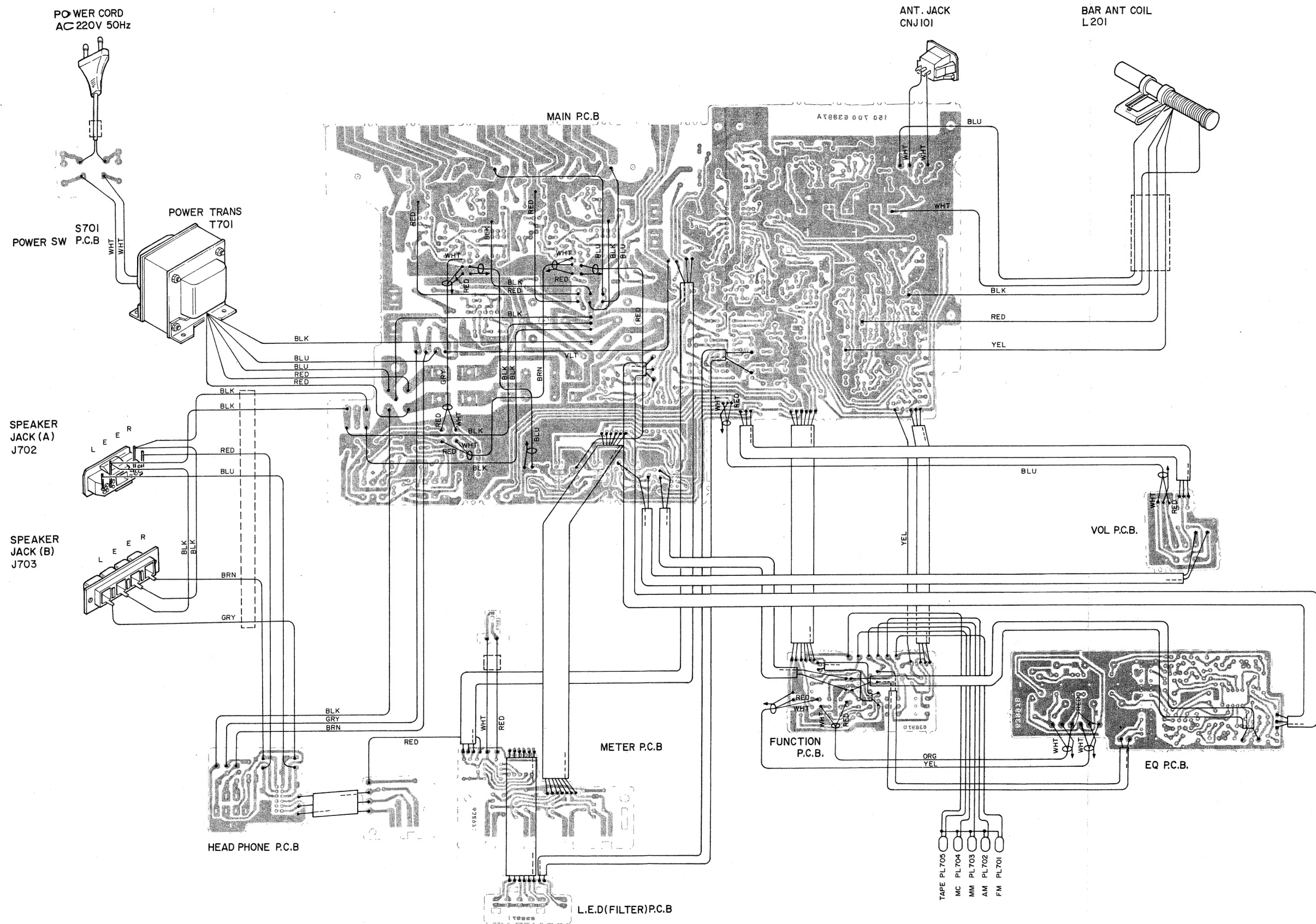


### 4-3: Mounting Diagram



 : B + Pattern  
 : B - Pattern

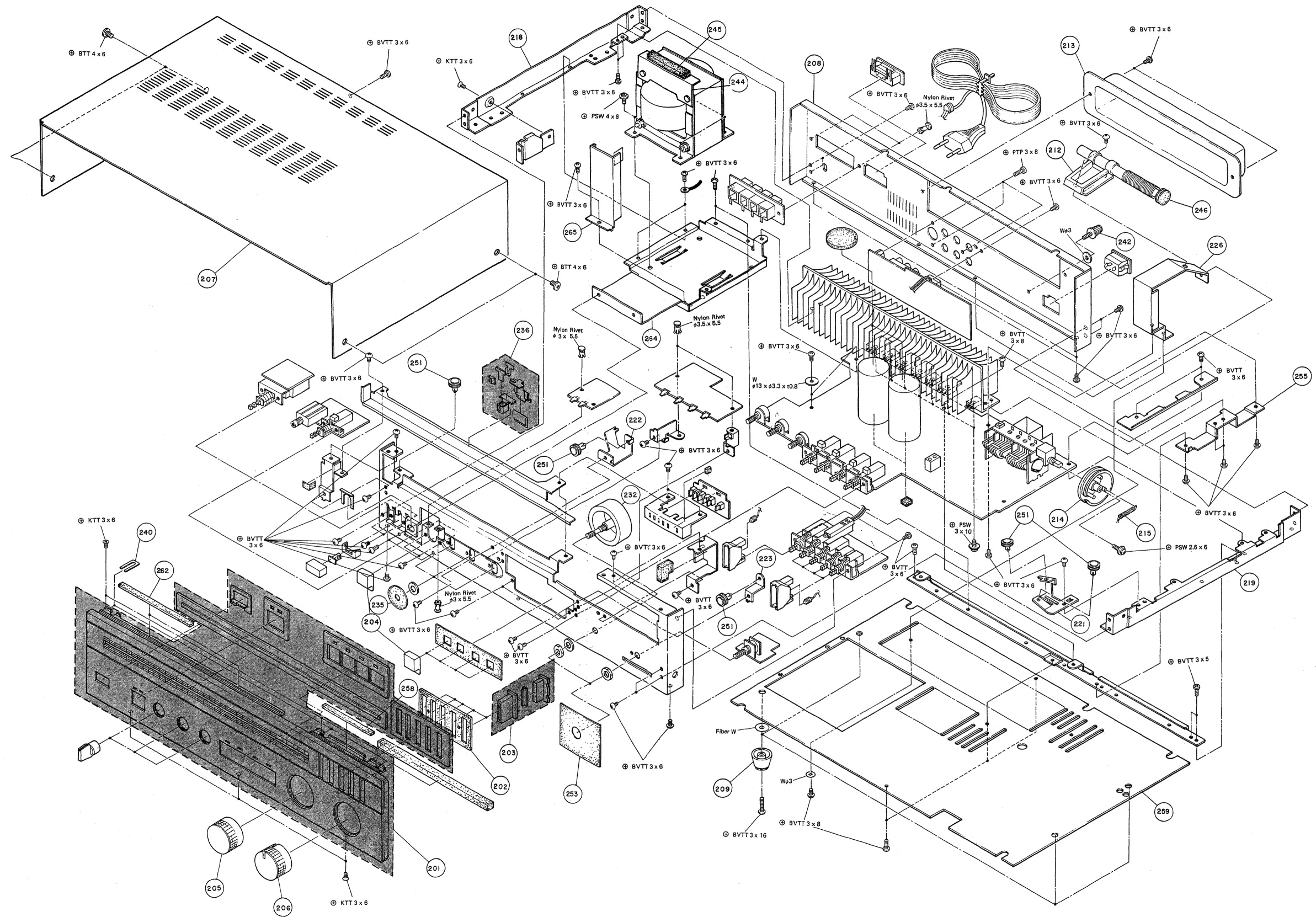
4-4: Wiring Diagram





## Exploded View — Cabinet —

## SECTION 5 EXPLODED VIEW



## Parts List — Cabinet —

Illus. No.	Parts No.	Parts Name
201	9-941-011-49	Front Panel Ass'y (Front Panel) (Transparent Plate Dial) (Bushing, Band Selector) (Bushing, Function) (Escutcheon, Power Switch) (Side Plate, L) (Side Plate, R)
202	9-941-011-62	Cushion, Band Selector
203	9-941-011-61	Knob Ass'y, Band Selector (Knob, Band Selector) (Indicator, A) (Indicator, B)
204	9-941-011-63	Push Button, Function
205	9-941-011-64 4-858-053-01	Knob Ass'y, Tuning (Knob ) (Cap )
206	9-941-011-65 4-858-053-01	Knob Ass'y, Volume (Knob ) (Cap )
207	9-941-011-66	Case
208	9-941-011-50	Rear Panel
209	9-941-011-55	Foot Ass'y
212	3-495-084-01	Holder, Antenna
213	4-863-229-01	Cover, Antenna
214	9-941-007-64	Drum, Dial
215	9-941-007-65	Spring, Coil

Illus. No.	Parts No.	Parts Name
232	9-941-007-51	Shaft, Tuning
235	3-831-441-XX	Spacer, Knob
236	9-941-007-54	Dial Pointer Ass'y with ● Pointer Holder (A)/(B) ● Pointer
240	9-941-011-01	Spacer
242	9-941-007-58	GND Terminal
244	9-941-007-61	Bracket, Cushion
245	9-941-007-62	Cushion (B)
246	9-941-010-84	Bush (A), Rubber
253	9-941-007-67	Spacer, VR
255	9-941-010-77	Bracket, Heat Sink
258	9-941-010-70	Cushion, LED Holder
259	9-941-010-80	Board, Bottom
262	9-941-010-67	Cushion, Case
264	9-941-010-79	Bracket, Trans.
265	9-941-010-73	Plate, Shield

## SECTION 6 PARTS LIST

### (1) Electrical Parts List

Ref. No.	Parts No.	Description
<b>SEMICONDUCTORS</b>		
<b>—ICs —</b>		
IC101	8-759-312-11	IC, HA11211
IC102	8-759-320-16	IC, HA12016
IC401	8-759-904-89	IC, TL489CP
IC501	8-759-145-58	IC, TL4558P
<b>— Transistors —</b>		
Q101	9-941-011-27	2SK49H
Q102, 103	8-729-893-04	Transistor, 2SC930D
R105, 107, 109	8-729-836-17	Transistor, 2SC536G
A110	8-729-860-80	Transistor, 2SA608F
Q111, 112, 201, 202	8-729-893-04	Transistor, 2SC930D
Q301	9-941-011-56	Transistor, 2SC2497Q
Q410, 402, 403, 404	8-729-803-03	Transistor, 2SC536F
<b>—Diodes —</b>		
D101, 105, 106, 112, 113, 102 120, 121	8-719-924-73	Diode, 1S2473
D108, 109, 110	1-800-770-11	Diode, 1S188AM
D204	8-719-924-73	Diode, 1S2473
D301	8-719-112-77	Diode, Zener GZA12U
D401	8-719-901-52	LED, SLP151D
D402, 403, 404, 405, 406	8-719-902-52	LED, SLP251D
D412, 413, 414 415	8-719-902-52	LED, SLP251D
D701		LED, SLP102A
<b>TRANS., COILS &amp; FILTERS</b>		
T101	9-941-007-91	LET, 10.7M
T701	9-941-007-19	Transformer (Power)
L101	9-941-007-87	Coil FM ANT
L102, 103	9-941-007-88	Coil FM RF
L104	9-941-007-90	Coil IF TRAP
L105	9-941-007-89	Coil FM OSC
L106	9-941-007-98	Coil CH1.8μH
L107	1-231-581-11	Filter, Low Pass
L201	9-941-011-55	Coil ANT (Bar)
L202		Coil OSC (MW)
CF101, 102	9-941-007-96	Ceramic Filter
CFU201	1-4-4-254-11	I.F.T.

Ref. No.	Parts No.	Description
<b>RESISTORS</b>		
<i>All Resistors are in <math>\Omega</math> Common 1/4 W Carbon resistors are omitted. Refer to the list on Page 00 for their part numbers.</i>		
RV101	1-226-235-11	RES, ADJ, Carbon 5Kohm
RV501, 601	9-941-007-07	RES, VAR, Carbon (VOL) 250KBx2
RV502	9-941-007-08	RES, VAR, Carbon (Balance) 250KSW
RV503, 504 603, 604	9-941-007-09	RES, VAR, Carbon (Tone) 20KCx2
<b>CAPACITORS</b>		
<i>All capacitors are in <math>\mu F</math> and ceramic unless otherwise noted. 500WV or less are not indicated excepted for electrolytics. Common Capacitors are omitted. Refer to the lists on Pages 00 and 00 for their part numbers.</i>		
CV101~105 CT101~105	9-941-007-92	CAP, VAR, AIR
<b>MISCELLANEOUS</b>		
S501~505 S506~509 S510	9-941-011-57	Switch Push (Function) Switch Push (Filter) Switch Push (Speaker)
S701	1-552-992-12	Switch Push (Power)
PL701, 702, 703		Lamp
J501, 503	1-507-637-21	Connector Jack
J504	1-561-413-11	Jack DIN (REC/PB)
J701	9-941-007-17	Jack Headphone
J702	9-941-007-18	Jack DIN 49 (Speaker)
J703	1-536-560-12	Terminal (Speaker)
CNJ401	1-561-443-11	Connector
CNJ101	9-941-007-16	Connector Jack (ANT)
	9-941-007-93	Plate, Shield (A)
	9-941-007-94	Plate, Shield (B)
	9-941-011-58	Heat Sink (Power)
	1-534-817-31	Cord, Power
	1-533-131-11	Fuse Holder
	9-941-007-86	Ferrite Bead
	9-941-000-50	Stopper, Cord
	9-941-011-59	P.C. B. Assy
		Terminal with Base (2P)
		Terminal with Base (6P)



**ACCESSORIES AND PACKING MATERIALS**

<b>Parts No.</b>	<b>Description</b>
3-701-626-01	Poly Bag
9-941-011-51	Cushion, (L)
9-941-011-52	Cushion, (R)
9-941-011-53	Individual Carton
9-941-011-54	Instruction Manual

# R355SH

## (2) Electrical Parts List – Common – ELECTROLYTIC CAPACITORS

Note: Circled letter (A) to (Z) are applicable to European models only.

CAP. (μF)	RATING					
	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00 (A)
1.0					→	1-121-391-00 (A)
2.2					→	1-121-450-00 (A)
3.3	→	→	→	1-121-392-00 (A)	→	1-121-393-00 (A)
4.7	→	→	→	1-121-395-00 (A)	→	1-121-396-00 (A)
10	→	→	1-121-651-00 (A)	1-121-398-00 (A)	→	1-121-738-00 (A)
22	→	→	1-121-479-00 (A)	1-121-480-00 (A)	1-121-662-00 (A)	1-121-152-00 (A)
33	→	→	1-121-403-00 (A)	1-121-404-00 (A)	1-121-652-00 (B)	1-121-405-00 (A)
47	→	1-121-352-00 (A)	1-121-409-00 (A)	1-121-410-00 (A)	1-121-653-00 (B)	1-121-411-00 (A)
100	→	1-121-414-00 (A)	1-121-415-00 (A)	1-121-416-00 (A)	1-121-357-00 (B)	1-121-417-00 (B)
220	1-121-419-00 (B)	1-121-420-00 (B)	1-121-421-00 (A)	1-121-422-00 (B)	1-121-261-00 (C)	1-121-423-00 (B)
330	1-121-751-00 (B)	1-121-805-00 (B)	1-121-521-00 (C)	1-121-654-00 (B)	1-121-655-00 (D)	1-121-656-00 (C)
470	1-121-424-00 (B)	1-121-425-00 (C)	1-121-426-00 (C)	1-121-733-00 (B)	1-121-361-00 (E)	1-121-810-00 (D)
1000	→	1-121-736-00 (C)	1-121-245-00 (D)	1-121-657-00 (D)	1-121-388-00 (E)	1-123-061-00 (F)
2200	1-121-658-00 (B)	1-121-659-00 (C)	1-121-660-00 (D)	1-123-067-00 (F)	1-121-984-00 (F)	→
3300	1-121-661-00 (D)	1-123-075-00 (E)	1-123-071-00 (F)	→	→	→

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	→	→	→	→
1.0	1-123-249-00 (A)	1-123-252-00 (A)	1-123-003-00 (B)	1-121-168-00 (B)
2.2	1-123-250-00 (A)	1-123-026-00 (B)	→	1-123-028-00 (B)
3.3	1-121-995-00 (A)	→	1-123-004-00 (B)	1-123-006-00 (C)
4.7	1-123-255-00 (A)	1-121-246-00 (B)	1-121-759-00 (B)	1-123-007-00 (D)
10	1-121-126-00 (B)	1-121-999-00 (B)	1-123-254-00 (C)	1-123-008-00 (D)
22	1-121-996-00 (C)	1-123-253-00 (C)	1-123-005-00 (D)	1-123-022-00 (D)
33	1-121-997-00 (C)	1-121-757-00 (C)	→	→
47	1-123-251-00 (C)	1-121-919-00 (C)	→	→
100	1-123-084-00 (E)	→	→	→

### CERAMIC CAPACITORS (A)

RATING							
CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (μF)	50 VOLT.
	PART No.		PART No.		PART No.		PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001μF = 1,000pF

### CERAMIC (SEMICONDUCTOR) CAPACITORS (A)

RATING					
CAP. (μF)	25 VOLT.	50 VOLT.	CAP. (μF)	25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015	→	1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018	→	1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022	→	1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

## MYLAR CAPACITORS (A)

Note: Circled letters (A to Z) are applicable to European models only.

RATING											
CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.
	PART No.	PART No.	PART No.		PART No.	PART No.	PART No.		PART No.	PART No.	PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	—	—
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	—	—
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	—	—
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	—	—
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				

## TANTALUM CAPACITORS

RATING							
→ : Use the high voltage rated one.							
CAP. (μF)	3.15 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	25 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.01					→	→	1-131-396-00 (B)
0.015					→	→	1-131-397-00 (B)
0.022					→	→	1-131-398-00 (B)
0.033					→	→	1-131-399-00 (B)
0.047					→	→	1-131-400-00 (B)
0.068					→	→	1-131-401-00 (B)
0.1					→	→	1-131-402-00 (B)
0.15					→	→	1-131-403-00 (B)
0.22					→	→	1-131-404-00 (B)
0.33					→	1-131-409-00 (B)	1-131-405-00 (B)
0.47	—	—	—	—	1-131-412-00 (B)	→	1-131-406-00 (B)
0.68	—	—	—	1-131-415-00 (B)	→	1-131-410-00 (B)	1-131-407-00 (B)
1.0	—	—	1-131-418-00 (B)	—	1-131-413-00 (B)	→	1-131-408-00 (B)
1.5	—	1-131-421-00 (B)	—	1-131-416-00 (B)	→	1-131-411-00 (B)	1-131-348-00 (B)
2.2	1-131-424-00 (B)	—	1-131-419-00 (B)	—	1-131-414-00 (B)	1-131-355-00 (B)	1-131-349-00 (B)
3.3	—	1-131-422-00 (B)	—	1-131-417-00 (B)	1-131-362-00 (B)	1-131-356-00 (B)	1-131-350-00 (B)
4.7	1-131-425-00 (B)	—	1-131-420-00 (B)	1-131-369-00 (B)	1-131-363-00 (B)	1-131-357-00 (B)	1-131-351-00 (C)
6.8	—	1-131-423-00 (B)	1-131-376-00 (B)	1-131-370-00 (B)	1-131-364-00 (B)	1-131-358-00 (C)	1-131-352-00 (C)
10	1-131-426-00 (B)	1-131-383-00 (B)	1-131-377-00 (B)	1-131-371-00 (B)	1-131-365-00 (C)	1-131-359-00 (C)	1-131-353-00 (D)
15	1-131-390-00 (B)	1-131-384-00 (B)	1-131-378-00 (B)	1-131-372-00 (B)	1-131-366-00 (C)	1-131-360-00 (D)	—
22	1-131-391-00 (B)	1-131-385-00 (B)	1-131-379-00 (C)	1-131-373-00 (C)	1-131-367-00 (D)		
33	1-131-392-00 (B)	1-131-386-00 (C)	1-131-380-00 (C)	1-131-374-00 (D)			
47	1-131-393-00 (C)	1-131-387-00 (C)	1-131-381-00 (D)	—			
68	1-131-394-00 (B)	1-131-388-00 (C)	—	—			
100	1-131-395-00 (D)	—	—	—			

## TANTALUM CAPACITORS

RATING						
CAP. (μF)	3 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.033						1-131-273-00 (E)
0.047						1-131-274-00 (E)
0.068						1-131-275-00 (E)
0.1						1-131-276-00 (D)
0.15						1-131-277-00 (D)
0.22			—	—	1-131-262-00 (D)	1-131-278-00 (D)
0.33			—	—	1-131-263-00 (D)	1-131-279-00 (D)
0.47			1-131-169-00 (D)	—	1-131-264-00 (D)	1-131-280-00 (D)
0.68			—	1-131-258-00 (D)	1-131-265-00 (D)	1-131-281-00 (D)
1.0			1-131-254-00 (D)	—	1-131-266-00 (D)	1-131-282-00 (D)
1.5		1-131-250-00 (D)	—	—	1-131-267-00 (D)	1-131-283-00 (E)
2.2		—	—	1-131-259-00 (D)	1-131-268-00 (D)	1-131-284-00 (E)
3.3		—	1-131-255-00 (D)	—	1-131-269-00 (D)	—
4.7		1-131-251-00 (E)	1-131-171-00 (D)	—	1-131-270-00 (D)	—
6.8		—	—	1-131-260-00 (D)	1-131-271-00 (E)	—
10	—	—	1-131-256-00 (D)	—	1-131-272-00 (E)	—
15	—	1-131-252-00 (D)	—	1-131-261-00 (E)	—	—
22	—	—	1-131-257-00 (E)	—	—	—
33	1-131-176-00 (D)	1-131-253-00 (E)	1-131-173-00 (C)	—	—	—
47	1-131-288-00 (F)	1-131-174-00 (D)	—	—	—	—
100	1-131-177-00 (D)	—	—	—	—	—

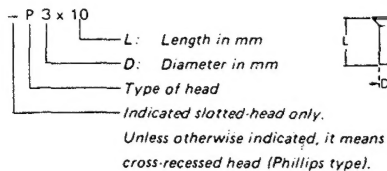
## 1/4 WATT CARBON RESISTORS Ⓐ

Note: Circled letter Ⓐ is applicable to European models only.

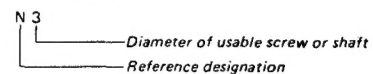
Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-576-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-577-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-578-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-579-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-580-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-581-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-582-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-583-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-584-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-585-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-586-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-587-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		













## HARDWARE NOMENCLATURE














Screw:



Nut, Washer, Retaining ring:



Reference Designation	Shape	Description	Remarks
<b>SCREWS</b>			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazer-head screw	

Reference Designation	Shape	Description	Remarks
<b>SELF-TAPPING SCREWS</b>			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self-tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
<b>SET SCREWS</b>			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
<b>NUT</b>			
N		nut	
<b>WASHERS</b>			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
<b>RETAINING RINGS</b>			
E		retaining ring	
G		grip-type retaining ring	